

SOME MITE PARASITES OF AUSTRALIAN BIRDS

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Synopsis

Thirty-six species of mites from five families are listed from Australian birds.

LAELAPIDAE: New hosts are given for 13 species (*Ornithonyssus bursa*, *O. sylviarum*, *Pellonyssus reedi*, *Mesonyssus kakatuae*, *M. trichoglossi*, *M. belopolskii*, *M. melloi*, *M. geopeliae*, *Sternostoma cooremani*, *S. laniorum*, *S. thienpontii*, *Ptilonyssus cractici* and *P. thymanzae*). Seven new records for Australia are listed: (*Sternostoma tracheacolum*, *Rhinonyssus himantopus*, *R. rhinolethrus*, *Larinyssus benoitii*—a genus also new to Australia, *Rallinyssus caudistigmus*, *Passeronyssus bradypteri* and *Ptilonyssus triscutatus*). Eight new species are described (*Sternostoma gliciphilae*, n. sp., from *Gliciphila indistincta*, Meliphagidae; *S. zosteropus*, n. sp., from *Zosterops lateralis*, Zosteropidae; *Ptilonyssus microecae*, n. sp., from *Microeca fascians* and *Eopsaltria capito*, Muscicapidae; *P. rhipidurae*, n. sp., from *Rhipidura fuliginosa*, Muscicapidae; *P. dicei*, n. sp., from *Dicaeum hirundinaceum*, Dicaeidae; *P. gliciphilae*, n. sp., from *Gliciphila indistincta*, Meliphagidae; *P. stomioperae*, n. sp., from *Stomiopera unicolor* and *Meliphaga flava*, Meliphagidae; and *Hattena panopla*, n. sp., from *Gliciphila indistincta*, Meliphagidae).

SPELEOGNATHIDAE: *Speleognathopsis benoitii* and *Neoboydaia merops* are newly recorded from Australia.

CHEYLETIDAE: The genus *Neocheyletiella*, represented by *N. artami*, n. sp., from *Artamus cyanopterus* (Artamidae), is added to the Australian fauna.

TROMBICULIDAE: New records are provided for *Odontacarus australiensis*, *Leptotrombidium myzantha* and *Neoschoengastia posekanyi*. *Trombicula shiraii*, known only from the original series from Japan, is recorded from a migratory wader on the Great Barrier Reef.

TURBINOPTIDAE: The genus *Passerrhinoptes*, represented by *P. pomatostomi*, n. sp., from *Pomatostomus temporalis* (Timaliidae), is listed from Australia for the first time.

Recent accessions have included the most interesting variety of bird-parasitic mites detailed below. For further details on the Australian members of the families discussed, the reader is referred to Domrow (1964*a, b, c*; 1965*c*) on laelapids; Domrow (1965*a*) on speleognathids; Womersley (1941) and Volgin (1964) on cheyletids; Womersley (1952) on trombiculids; and Domrow (1965*b*) on turbinoptids.

Messrs. D. P. Vernon and J. T. Woods, Queensland Museum, Brisbane, have checked many bird identifications, and Mr. J. H. Calaby, C.S.I.R.O., Canberra, provided some of the material. The collectors, acknowledged by their initials in the text, are, apart from myself, B. C. Allan, G. J. Barrow, J. Booth, I. D. Fanning, R. H. Green, H. I. McDonald, M. D. Murray, J. M. Paton, R. G. Rees, R. V. Southcott and J. S. Welch. I am most grateful to them all, and to Miss B. Nolan for typing the manuscript.

The holotypes and allotypes of new species have been deposited in the Australian National Insect Collection, C.S.I.R.O., Canberra; paratypes, when available, have been lodged in the collections under the care of Drs. A. Fain (Prince Leopold Institute of Tropical Medicine, Antwerp), and R. W. Strandtmann (Texas Technological College, Lubbock), and myself.

Family LAELAPIDAE

ORNITHONYSSUS BURSA (Berlese)

Host records additional to those listed by Domrow (1963) are extremely heavy infestations with both females and protonymphs on two Australian black-shouldered kites, *Elanus notatus* Gould (Accipitridae, Falconiformes),

14.vi.1963, I.D.F. and R.G.R. (occasional specimens were taken on several other bird hosts with the same collection data, but as the risk of field contamination is high with such an active species, they have not been listed here); 1 protonymph from a fledgling laughing kookaburra, *Dacelo gigas* (Boddaert) (Alcedinidae, Coraciiformes), Brisbane, 17.xii.1964, R.G.R.; many females from around the vent of a pheasant coucal, *Centropus phasianinus* (Latham), Samford, 21.i.1964, R.G.R. and J.S.W., and 15♀♀ from a koel, *Eudynamys orientalis* (Linnaeus), Brisbane, 8.ii.1965, B.C.A. (both Cuculidae, Cuculiformes); also 7♀♀ from a starling, *Sturnus vulgaris* Linnaeus (Sturnidae, Passeriformes), Brisbane, 3.xii.1963, R.D. An interesting southerly record of this, the tropical fowl mite, is 2♀♀ biting children, Launceston, Tas., 7.i.1963, R.H.G.

ORNITHONYSSUS SYLVIARUM (Canestrini and Fanzago)

As all known Australian records of this species are from the far south-east of the continent (Womersley, 1956a; Domrow, 1963), the following record from Queensland is of interest: 1♀ from the welcome swallow, *Hirundo neoxena* Gould (Hirundinidae, Passeriformes), Brisbane, 3.xii.1963, R.D. The Australian *H. neoxena* is a migratory species, which departs for the northern parts of the continent in the autumn (Cayley, 1963). I have since seen 13♀♀ from nestlings of the blackbird, *Turdus merula* Linnaeus (Turdidae, Passeriformes) (introduced from Europe, and now common in S.E. Australia), Evendale, Tas., 5.i.1963, R.H.G. Also 1♀ from a golden whistler, *Pachycephala pectoralis* (Latham) (Pachycephalidae, Passeriformes), Esk, 14.vii.1965, R.D. and J.S.W.

PELLONYSSUS REEDI (Zumpt and Patterson)

Five♀♀ from the beautiful firetail, *Zonaeginthus bellus* (Latham) (Ploceidae, Passeriformes), Waitpinga, S.A., 31.xii.1963, J.M.P., comprise the second record of this species from Australia. See Womersley (1956b) and Till (1964). An additional synonym is *Steatonyssus stenosternus* Wang (1963). I am most grateful to Dr. F. Zumpt, South African Institute for Medical Research, Johannesburg, and the Director, South Australian Museum, Adelaide, for the gift or loan of material of this genus.

MESONYSSUS KAKATUAE (Domrow)

One ♀ and 1♂ from the nares of a red-tailed black cockatoo, *Calyptorhynchus banksi* (Latham) (Psittacidae, Psittaciformes), Mitchell R., Gulf of Carpentaria, xi.1964, R.D., comprise a new host record. See Domrow (1964a) and Wilson (1964).

MESONYSSUS TRICHOGLOSSI (Domrow)

This species, previously recorded from several psittacids in Australia and New Guinea (Domrow, 1964a; Wilson, 1964), may now be recorded from a further Australian host: 2♀♀ from the nares of a little lorikeet, *Glossopsitta pusilla* (Shaw) (Psittacidae, Psittaciformes), Esk, 27.ii.1965, R.D. and J.S.W.

The specimens agree with the original description of the typical form, except that only twelve furred setae are present on the dorsum: four along midposterior margin of podosomal shield, one on shieldlet at each posterolateral angle of podosomal shield, and three on each half of posterior dorsal shield (two on inner, and one on outer edge).

MESONYSSUS BELOPOLSKII (Bregotova)

Six♀♀, 10♂♂ and 2 nymphs from the nares of a pied heron, *Notophoxya picata* (Gould) (Ardeidae, Ciconiiformes), Mitchell River, xi.1964, R.D., comprise a new host record. See Domrow (1965c).

MESONYSSUS MELLOI (de Castro)

Seven ♀♀, 4♂♂ and 1 nymph from the nares of two domestic pigeons, *Columba livia* Gmelin (Columbidae, Columbiformes), Brisbane, 2.xii.1964, R.D. and J.S.W., comprise a new host record for Australia. See Fain (1962a) and Domrow (1965c).

MESONYSSUS GEOPELIAE Fain

One ♂ from the nares of a peaceful dove, *Geopelia placida* Gould (Columbidae, Columbiformes), Mitchell R., xi.1964, R.D., comprises a new host record. See Fain (1964) and Domrow (1965c).

STERNOSTOMA COOREMANI Fain

Two ♀♀ from the nares of a rainbow-bird, *Merops ornatus* Latham (Meropidae, Coraciiformes), Esk, 28.viii.1964, R.D. and J.S.W., comprise a new host record. Previous records, all from coraciiforms, are summarized by Domrow (1965c).

STERNOSTOMA GLICIPHILAE, n. sp.

(Figs 1-5)

Female.—A small, oval mite with idiosoma wider in anterior half, 440-473 μ long. Podosomal shield with anterolateral margins ill-defined, but posterolateral margins distinct and virtually straight medially. Shield almost entirely covered by very sharply defined subhexagonal reticulation which is more heavily sclerotized than remainder of shield, giving the effect of honeycomb. Areas of muscle insertions nestle among this texture, and the shield further bears five pairs of minute setae both laterally and medially. Opisthosomal shield rectangular, with greater axis longitudinal; texture similar to that of podosomal shield; with about six minute setae. Dorsal cuticle otherwise unarmed except for two small, circular stigmata (without peritremes).

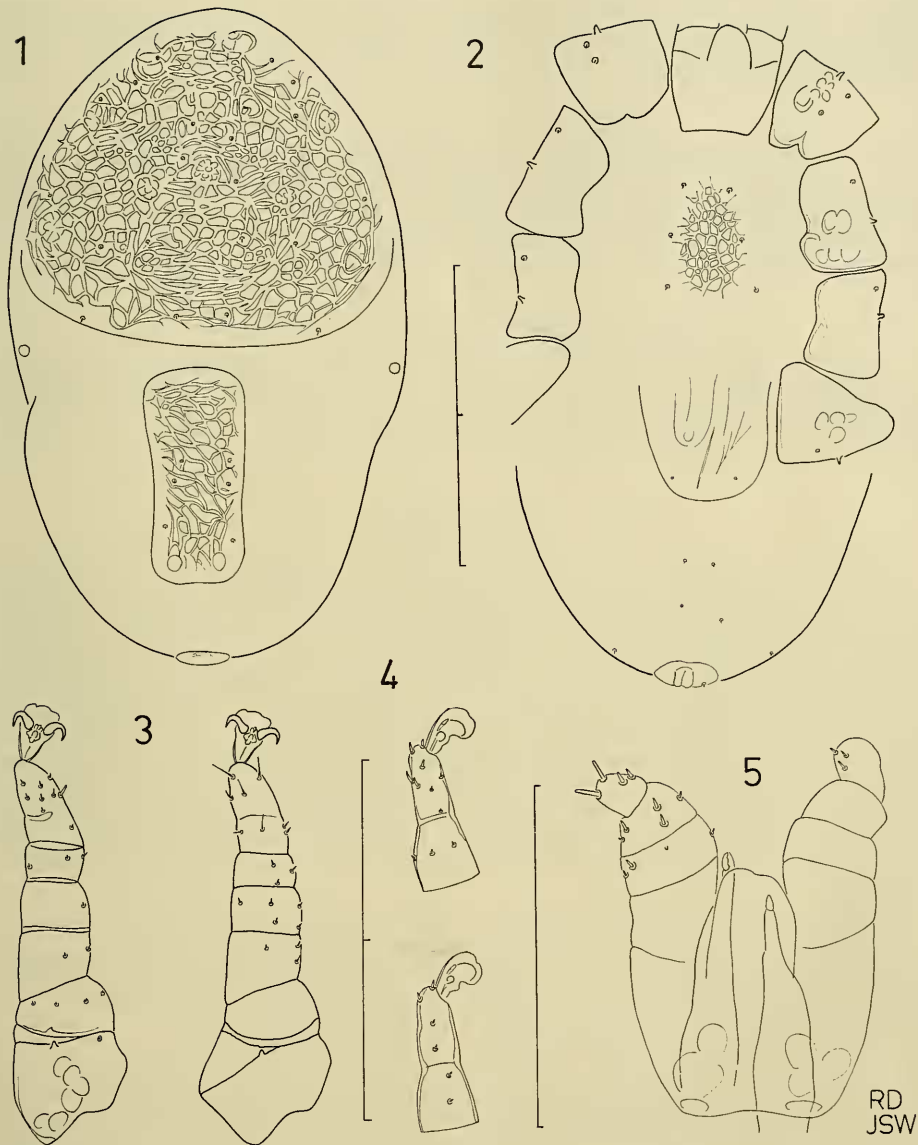
Sternal shield discally imitating texture of podosomal shield, but reticulation finer; encircled by six sternal setae; margins evanescent. Genital shield short and broad, with nondescript texture and merest asetose traces of original genital setae. Anal shield terminal, typically with at least adanal setae and cribrum. Ventral cuticle typically with six minute setae arranged 4.2, but minor variations were noted as follows: (i) five setae rather than four in central group; and (ii) outer posterior pair of setae apparently lacking.

Coxal setal formula 2.1.1.1, with occasional asetose traces of posterior seta on coxae II and III (aberrations from the typical 2.2.2.1 of the Gamasina are apparently common in this genus, but they are of less than specific importance (see Fain, 1957; Fain and Bafort, 1963b; Furman, 1957; Hyland, 1962; Hyland and Clark, 1959; Hyland and Ford, 1961). Leg setation in general extremely weak, but few longer setae on tarsi II-IV. Tarsi I with several thicker setae dorsodistally. Claws I obsolescent; claws II-IV strongly curved, as is usual.

Gnathosomal and hypostomal setae apparently absent. Tritosternum absent. Palpi with four free segments, line of demarcation between tibia and tarsus indistinguishable. Palpal setation as figured. Chelicerae typical of genus.

Discussion.—*S. glicephilae* is quite unlike other species of the genus in its peculiarly textured dorsal shield. It is, in addition, the only species known from a peculiarly Australian group of birds—only one species of the family Meliphagidae has crossed Wallace's Line to the west, see Leach [1958], whose classification is used in this paper.

Types.—Holotype female and two paratype females from the mucous membranes at the extreme posterior of the nares of a brown honeyeater, *Gliciphila indistincta* (Vigors and Horsfield) (Meliphagidae, Passeriformes), Esk, 16.i.1965, R.D. and J.S.W. Holotype NIC; paratypes RD.



Figs 1-5. *Sternostoma glycipilae*, n. sp. Female.—1, Idiosoma (dorsal); 2, Idiosoma (ventral); 3, Leg III (ventral at left, dorsal at right); 4, Tarsus I (anterior above, posterior below); 5, Gnathosoma (ventral, with left palp dorsal). (Each division on the scales equals 100 μ .)

STERNOSTOMA LANIORUM Fain

Four ♀♀ from a crested bellbird, *Oreica gutturalis* (Vigors and Horsfield) (Falconculidae, Passeriformes), Mitchell, S.Q., 25.v.1964, I.D.F., and 1♀ from a rufous shrike-thrush, *Colluricincla megarhyncha* (Quoy and Gaimard) (Pachycephalidae, Passeriformes), mist-netted along the Innisfail-Palmerston Highway, 16.xii.1964, H.I.MeD. and G.J.B., comprise new host records (other birds listed below from this latter locality were also netted, while almost all the others were shot). All specimens were taken from the nares, and the ventrodistal setae on tarsi II-IV are blunt in both series (see Fain, 1957, and Domrow,

1965c). Also 1♀ from a leaden flycatcher, *Myiagra rubecula* (Latham), a d 9♀♀ from a pale-yellow robin, *Eopsaltria capito* Gould (both Muscicapidae, Passeriformes), Innisfail, 3 and 4.viii.1965, R.D. and J.S.W.

STERNOSTOMA THIENPONTI Fain

One ♀ from the nares of a black butcher-bird (black phase), *Cracticus quoyi* (Lesson and Garnot) (Cracticidae, Passeriformes), Innisfail-Palmerston Highway, 11.xii.1964, H.I.McD. and G.J.B., comprises the second Australian record of this species, again from a cracticid (see Domrow, 1965c). Also 19♀♀ from a black butcher-bird (red phase), Innisfail, 1.vii.1965, G.J.B. and H.I.McD.

STERNOSTOMA TRACHEACOLUM Lawrence

This widespread species may now be formally recorded from Australia (see Domrow, 1965c): 21♀♀ from the trachea of the Gouldian finch, *Poephila gouldae* (Gould) (Ploceidae, Passeriformes), Sydney, 19.x.1964, M.D.M. Previous records are summarized by Fain and Hyland (1962).

STERNOSTOMA ZOSTEROPUS, n. sp.

(Figs 6-12)

Female.—A small, oval mite with idiosoma shaped as in *S. gliciphilae*, n. sp., 402μ long in little deformed specimen figured, 495μ in second somewhat compressed specimen. Podosomal shield sharply arched anteriorly, sinuous laterally and posteriorly; surface heavily granulate except at extreme margins, marked by muscle insertions and bearing four pairs of setae both marginally and medially, in addition to two pairs of lateral pores. Opisthosomal shield subquadrate, of similar texture to podosomal shield. One specimen shows two stronger setae both anteriorly and posteriorly, as well as six smaller setae discally. The other shows two stronger setae posteriorly, two setae and perhaps four asetose indications of setae discally, while it is flanked anteriorly by an unpaired, stronger seta. Shield with pore in each posterolateral angle. Dorsal body cuticle with two distinct setae behind stigmata, which latter have no peritremes.

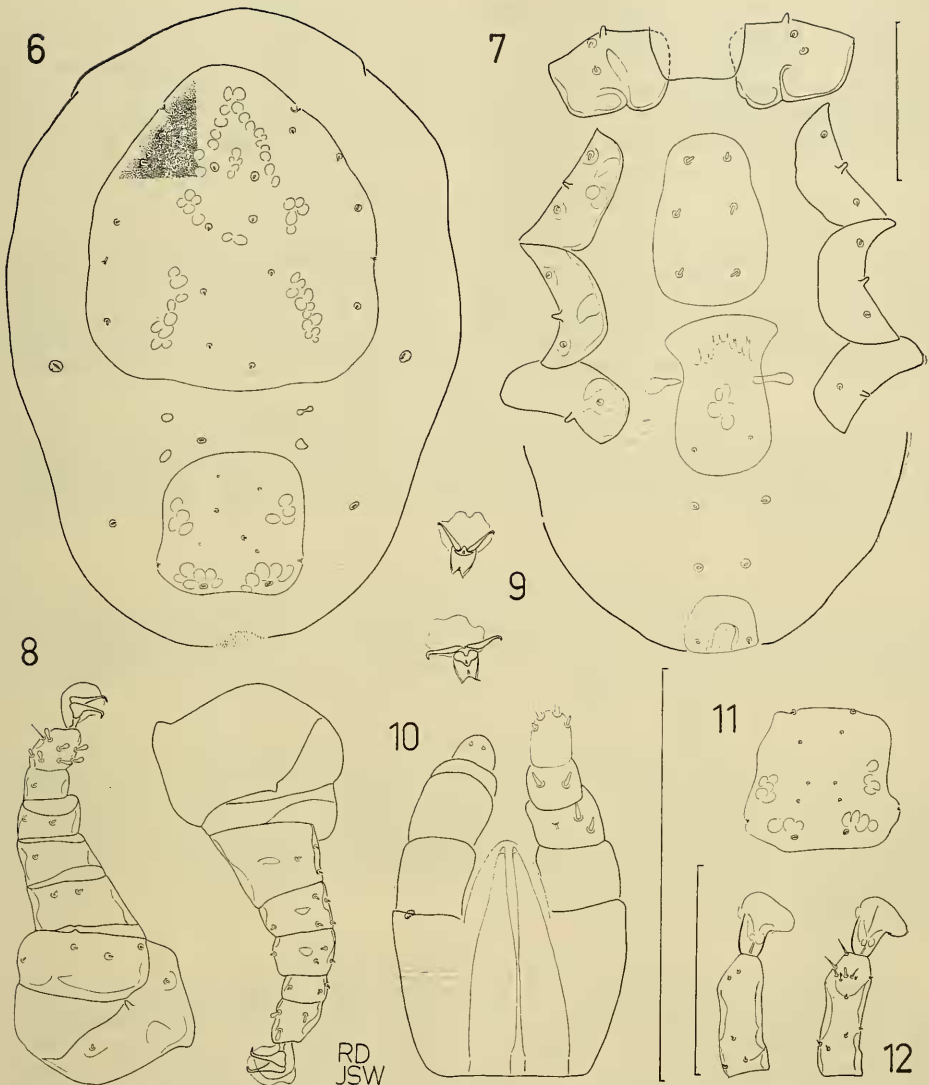
Sternal shield weakly granulate except for textureless, but rather well defined margins; bearing six blunt setae. Genital shield short and broad, weakly granulate, with muscle insertions and truncate, rayed operculum. Genital setae obsolescent. Anal shield terminal, with at least adanal setae and cribrum present. Ventral cuticle with four distinct setae.

Coxal setal formula 2.2.2.1, setae weak, as they are on all segments except tarsi. Tarsus I with sensory islet dorsodistally showing both longer setae and rodlets. Tarsi II-IV with setae arranged slightly differently from *S. gliciphilae*, showing the pattern typical of *Ptilonyssus*; all setae, except one, like elongate droplets. Claws I obsolescent; claws II-IV straight along most of their length, curved only distally.

Gnathosomal and hypostomal setae apparently absent. Tritosternum lacking. Palpi with four movable segments, the line of demarcation between tibia and tarsus virtually invisible; setation as figured. Chelicerae typical of genus.

Discussion.—*S. zosteropus* may be separated from all its described congeners by its peculiarly straight tarsal claws II-IV.

Types.—Holotype female and one paratype female from the nares of a grey-backed silvereye, *Zosterops lateralis* (Latham) (Zosteropidae, Passeriformes), mist-netted at Mt. Jukes, Mackay, vi.1964, R.D. and J.S.W. Holotype NIC; paratype RD.



Figs 6-12. *Sternostoma zosteropus*, n. sp. Female.—6, Idiosoma (dorsal); 7, Idiosoma (ventral); 8, Leg III (ventral at left, dorsal at right); 9, Ambulacrum III (two views); 10, Gnathosoma (ventral, with right palp dorsal); 11, Opisthosomal shield (variant); 12, Tarsus I (ventral at left, dorsal at right).

RHINONYSSUS HIMANTOPUS Strandtmann

This widespread parasite of waders may now be listed from Australia: 1♀ from a red-kneed dotterel, *Erythrogonys cinctus* Gould; and 2♀♀ and 3♂♂ from a masked plover, *Lobibyx miles* (Boddaert) (both Charadriidae, Charadriiformes), Mitchell R., xi.1964, R.D. All specimens were collected in the nares. The former series resembles Strandtmann's original (1951) specimens from *Himantopus* (Recurvirostridae, Charadriiformes), and the latter his later (1959) specimens from *Charadrius*. I am grateful to Dr. Strandtmann for the loan of specimens of this species, of which I have since seen 10♀♀, 4♂♂ and 1 nymph from black-fronted dotterels, *Charadrius melanops* Vieillot, Mitchell R., iv.1965, R.D., and 1♂ from a spur-winged plover, *Lobibyx novaehollandiae* (Stephens), Esk, 16.v.1965, I.D.F. and J.S.W.

RHINONYSSUS RHINOLETHRUS (Trouessart)

This widespread parasite of anseriforms may now be recorded from Australia: 2♀♀ from the nares of a whistling tree-duck, *Dendrocygna arcuata* (Horsfield) (Anatidae, Anseriformes), Mitchell R., xi.1964, R.D. It has also been recorded from the black duck, *Anas superciliosa* Gmelin, in New Guinea (Wilson, 1964), but I have as yet no such Australian record.

LARINYSSUS BENOITI Fain

(Figs 13–21)

This genus and species may now be listed from Australia: 33♀♀, 9♂♂ and 2 nymphs from the nares of five Australian pratincoles, *Stiltia isabella* (Vieillot) (Glareolidae, Charadriiformes), Mitchell R., xi.1964, R.D. The only previous record is from *Galachrysis*, an African glareolid. Dr. Fain has kindly compared my illustrations with his specimens, and confirmed my identification.

RALLINYSSUS CAUDISTIGMUS Strandtmann

This species, known only from American rallids (Strandtmann, 1948), may now be recorded from Australia: 6♀♀ and 1♂ from the nares of a dusky moorhen, *Gallinula tenebrosa* Gould (Rallidae, Gruiformes), Esk, 27.ii.1965, R.D. and J.S.W.

PASSERONYSSUS BRADYPTERI Fain

This species may now be listed from Australia: 4♀♀ from the nares of a rufous songlark, *Cinclorhampus matthewsi* Iredale (Sylviidae, Passeriformes), Esk, 29.viii.1964, R.D. and J.S.W. The only previous record is from *Bradypterus*, an African sylviid (Fain, 1962b).

PTILONYSSUS TRISCUTATUS (Vitzthum)

This parasite of European and African bee-eaters (see Fain, 1957) may now be recorded from Australia: 1♀ from the nares of a rainbow-bird, *Merops ornatus* Latham (Meropidae, Coraciiformes), Esk, 29.viii.1964, R.D. and J.S.W. The dorsum of femur III of this specimen shows an oblique row of three closely-set setae reminiscent of genu III in *Tyrannyssus* Brooks and Strandtmann (1960). See also Hyland (1961).

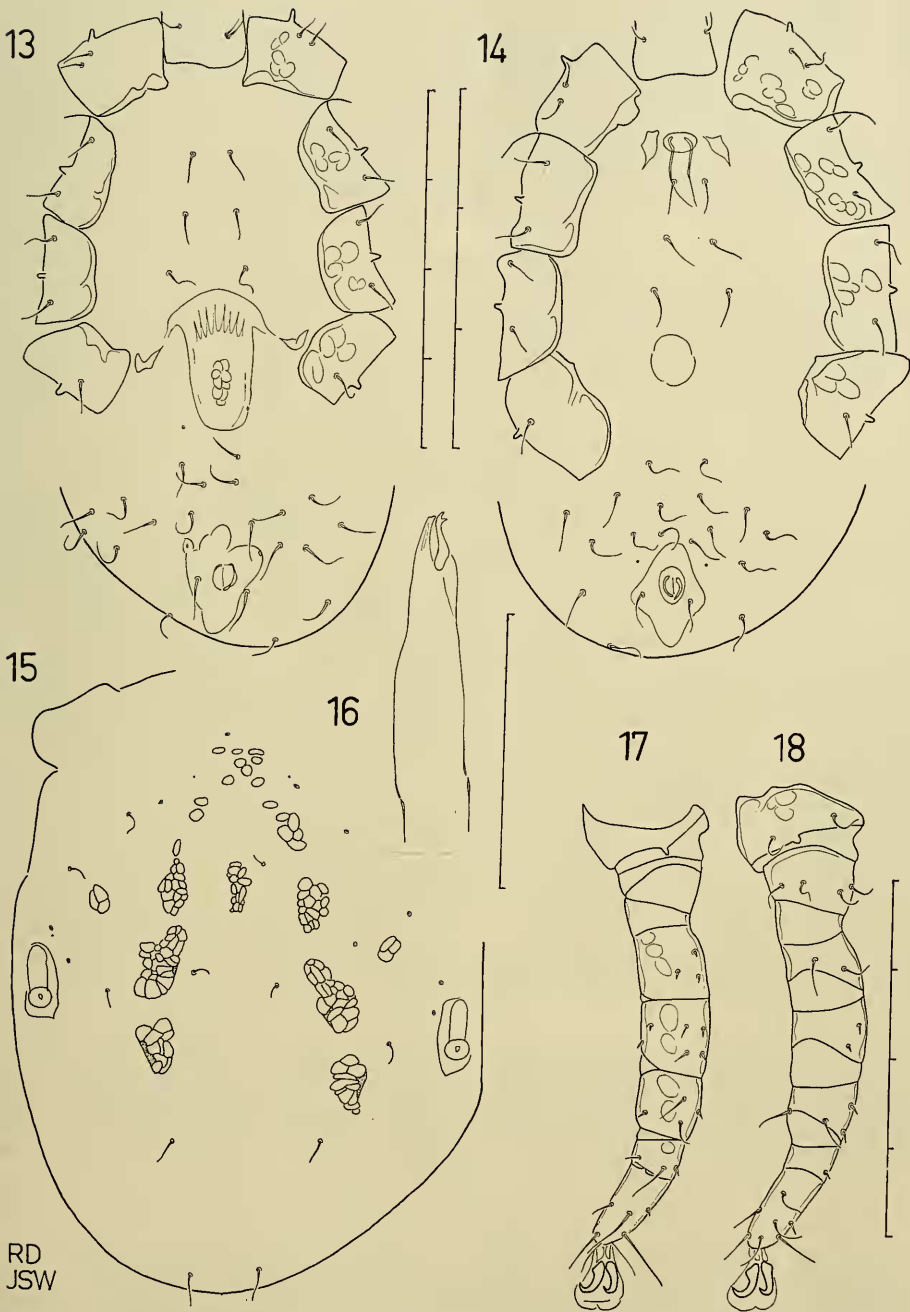
PTILONYSSUS CRACTICI Domrow

Seven ♀♀, 1 deutonymph and 1 protonymph from a black-backed butcher-bird, *Cracticus mentalis* Salvadori and d'Albertis (Cracticidae, Passeriformes), Chillagoe, 2.i.1965, G.J.B., comprise a new host record. See Domrow (1964c). I have since also seen 4♀♀ and 1 deutonymph from the nares of a white-winged triller, *Lalage tricolor* (Swainson) (Campephagidae, Passeriformes), Mitchell R., 7.iv.1965, R.D., which I assign to this species. They differ from paratypes only in showing the adanal setae set just behind the anus, and slight processes at the anterior edges of coxae II and the palpal trochanters (the former process is absent, and the latter incipient, in paratypes). Also 4♀♀ and 1 protonymph from a grey butcher-bird, *Cracticus torquatus* (Latham), Esk, 5.x.1965, R.D. and J.S.W. Finally, 1♀ from a laughing kookaburra, *Dacelo gigas* (Boddaert) (Alcedinidae, Coraciiformes), Esk, 14.vii.1965, R.D. and J.S.W. This seems an abnormal host, and it is recognized that "many records of stragglers are simply curiosities, though their publication should presumably not be suppressed" (Audy, 1956, *Bull. Raffles Mus., Singapore*, 28: 74).

PTILONYSSUS MICROECAE, n. sp.

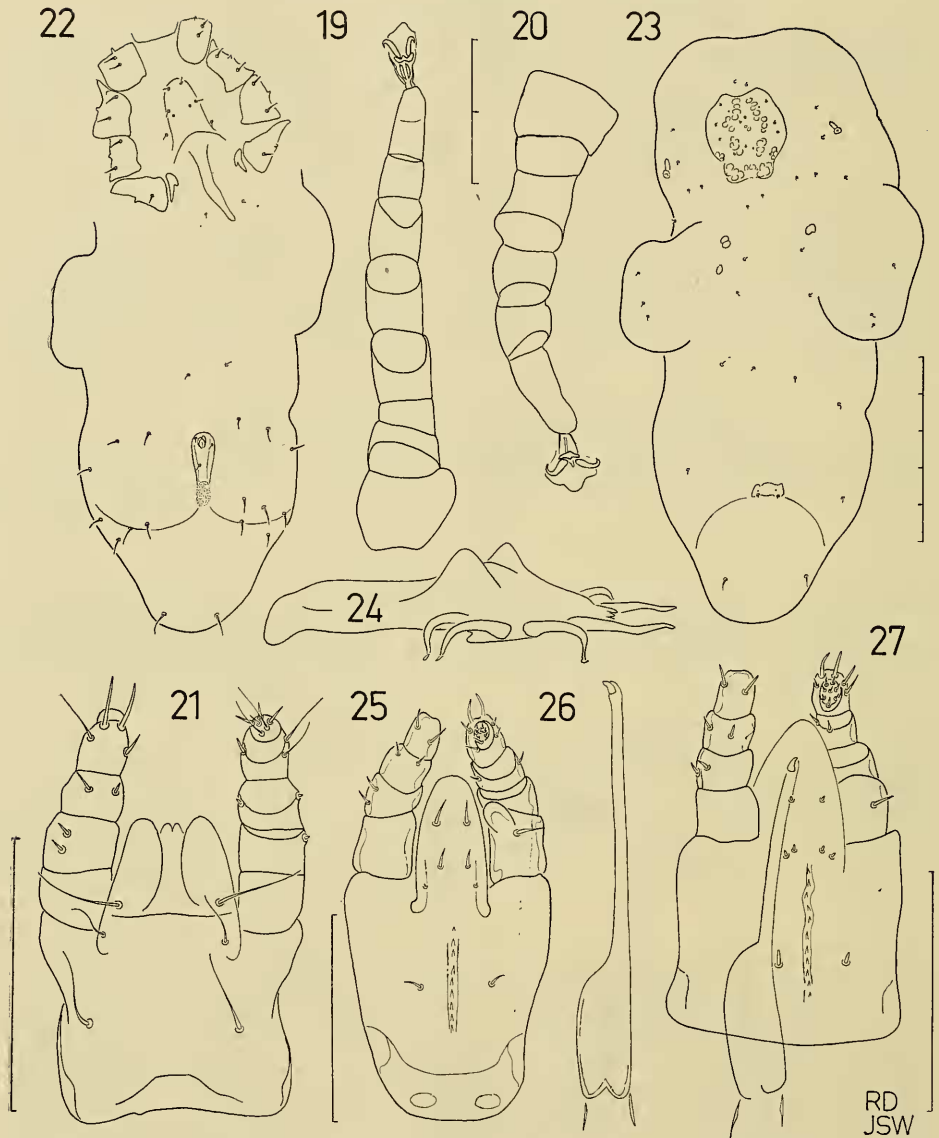
(Figs 25–26, 28–31)

Female.—An elongate mite with idiosoma about 850–880μ long in mounted, rather compressed specimens. Podosomal shield about one and a half times



Figs 13-18. *Larinyssus benoiti* Fain.—13, Idiosoma ♀ (ventral); 14, Idiosoma ♂ (ventral); 15, Idiosoma ♂ (dorsal); 16, Chelicera ♀ (lateral); 17, Leg III ♀ (dorsal); 18, Leg III ♀ (ventral).

RD
JSW



Figs 19-21. *Larinyssus benoiti* Fain.—19, Leg IV ♀ (ventral); 20, Leg I ♀ (ventral); 21, Gnathosoma ♂ (ventral, with left palp dorsal).
 Figs 22-24. *Ptilonyssus thymanzae* Domrow. Female.—22, Idiosoma (ventral, *M. chrysops*); 23, Idiosoma (dorsal, *M. chrysops*); 24, Whole mite ♀ (freehand, *M. notata*).
 Figs 25-26. *Ptilonyssus microecae*, n. sp. Female.—25, Gnathosoma (ventral, with left palp dorsal, *Microeca*); 26, Chelicera (lateral, *Microeca*).
 Fig. 27. *Ptilonyssus rhipidurae*, n. sp. Female.—Gnathosoma (ventral, with left palp dorsal).

as long as wide, and slightly wider in anterior half ($223-228 \times 154-161\mu$); with anterior and posterior margins nondescript and subequal, and lateral margins tending to convexity in anterior half. Shield not strongly outlined, very minutely granulate, with weakly marked muscle insertions and sixteen paired setae (in specimen figured, seta marked X is somewhat displaced to the front). Peritremalia and adjacent setae as in *P. rhipidurae*, n. sp. Middorsum with eight setae, of which midanterior pair is set between posterior of two pairs

of shieldlets. Hysterosoma with entire pygidial shield bearing traces of muscle insertions, at least one pore and two spinose pygidial setae; surrounded by six setae arranged 4.2. All dorsal (and ventral) setae tapering to point somewhat stronger on posterior half of body.

Sternal shield elongate, very weakly defined and textureless, bearing two pores and six marginal setae. Genital shield shorter, somewhat flared posteriorly; lateral margins not heavily sclerotized, bearing two genital setae; disc denser, with granulations and muscle insertions; operculum rayed. Anal shield almost twice as long as wide ($125 \times 74\mu$ in holotype, $119 \times 64\mu$ in paratype), with anterior margin arched and lateral margins rather straight and sclerotized; cribrum present. Anus set well forward, with adanal setae level with its anterior; postanal seta present. Ventral cuticle with eight setae arranged 2.6 between genital and anal shields, and latter flanked by four additional setae.

Leg segments with setation as follows: coxae 2.2.2.1; trochanters 4.4.4.5; femora 9.7.4.5; genua 6.6.6.3; tibiae 7.7.6.6 (5 on one side of one specimen); tarsi -15.15.15 (excluding two very fine terminal setae). Leg setae resembling those on coxae, slightly smaller dorsally; two setae on dorsum of genu III set in enlarged alveoli; two ventrodiscal setae on tarsi II-IV slightly stronger. Tarsus I with dorsodistal sensory zone. Ambulacra I not greatly modified. Coxa II without process on anterodorsal margin.

Gnathosomal setae subequal to inner posterior hypostomals, slightly weaker than anterior hypostomals; outer posterior hypostomals minute. Deutosternum with about nine denticles in single file. Chelicerae attenuate in distal two-thirds, with chelate portion occupying one-thirty-fifth of total length. Palpal setal formula 1.2.4.8 (including two dorsodistal tibial rods). Palpal trochanter distinctly salient on inner ventrodiscal angle. Tarsus with about eight minute setae; claw not detected. Tritosternum absent.

Discussion.—*P. microecae* recalls *P. motacillae* Fain, both possessing a saliency on the palpal trochanter, but the new species may be easily separated from Fain's by the shape and setation of the podosomal shield, the absence of a process on coxa II and (possibly) by the condition of the pygidial shield.

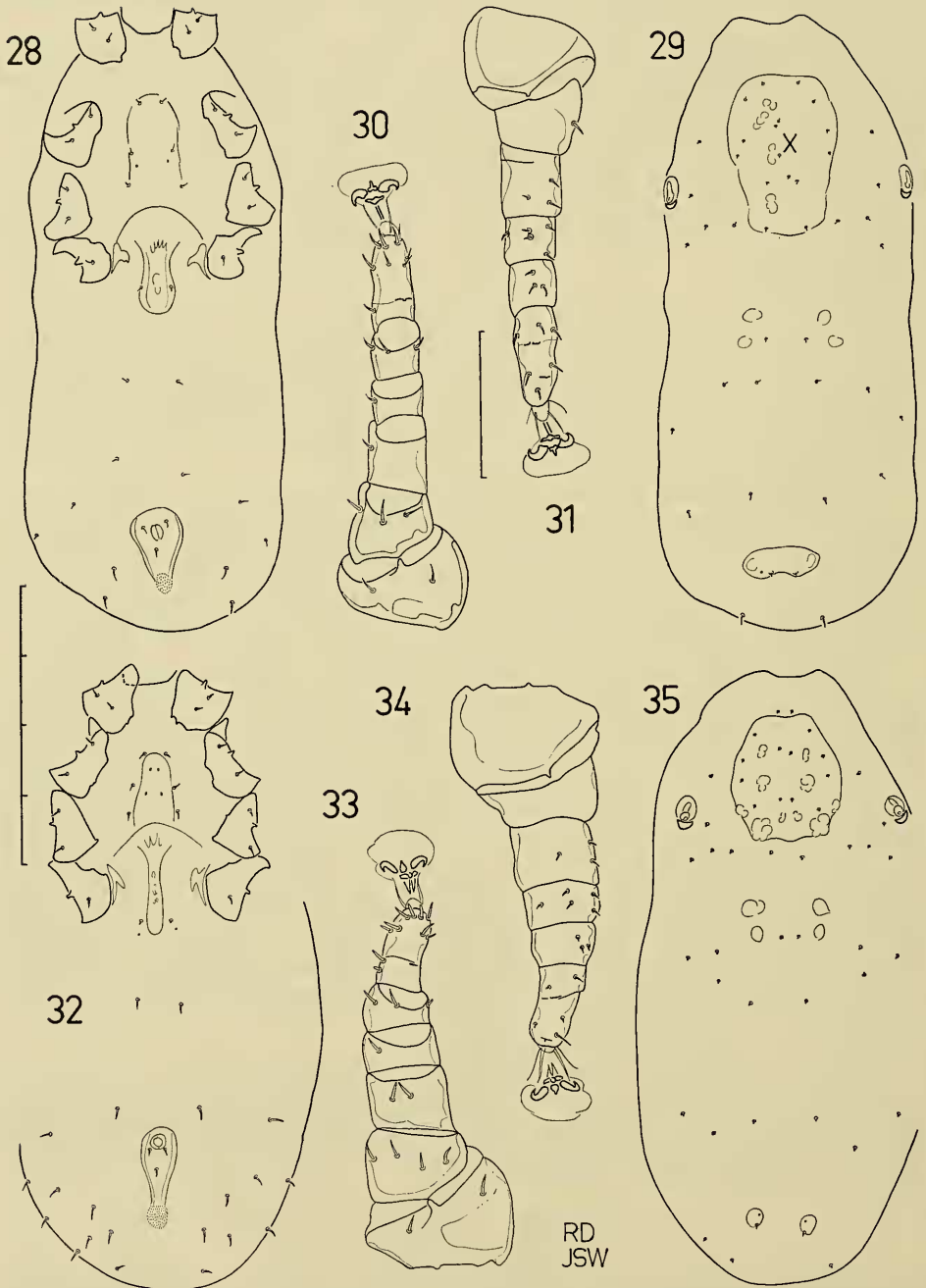
The few Malayan specimens from *Poliomyias mugimaki* (Temminck) (listed by McClure, 1963, as *Muscicapa mugimaki*) recorded by Fain and Nadchatram (1962) have the podosomal shield exactly as in *P. motacillae* and possess a process on coxa II. Further, at least in the specimen I have examined (through the courtesy of Dr. Fain), the pygidial shield is in a semidivided condition, being eroded midposteriorly. George (1961) has reported that the pygidial shield, while normally divided, may occasionally be entire in *P. echinatus* Berlese and Trouessart, while the opposite is true of two of thirteen females of *P. thymantzae* Domrow (1964c), *Myzantha melanocephala* (type host), Esk, 29.viii.1964, R.D. and J.S.W. I would tend to consider these Malayan specimens merely as variants of the widespread *P. motacillae*.

Types.—Two females were collected—one (holotype) from the nares of a jacky winter, *Microeca fascians* (Latham), Esk, S.E.Q., 8.ii.1964, R.D., I.D.F. and J.S.W.; and one (paratype) from a pale-yellow robin, *Eopsaltria capito* Gould, Mitchell River, xi.1964, R.D. Both hosts are muscicapids (Passeriformes). Holotype NIC; paratype RD.

PTILONYSSUS RHIPIDURAE, n. sp.

(Figs 27, 32-35)

Female.—An elongate mite with idiosoma 693μ long in one unengorged and relatively uncompressed specimen, $781-869\mu$ in replete specimens. Podosomal shield slightly longer than wide ($172-178 \times 143-156\mu$); anterior margin slightly concave, lateral margins convex and posterior margin weakly trilobed. Shield minutely granulate, with muscle insertions, including two posterolateral zones, weakly marked; with twelve evenly arranged setae on



Figs 28-31. *Ptilonyssus microecae*, n. sp. Female.—28, Idiosoma (ventral, *Eopsaltria*); 29, Idiosoma (dorsal, *Eopsaltria*); 30, Leg III (ventral, *Microeca*); 31, Leg III (dorsal, *Microeca*). Figs 32-35. *Ptilonyssus rhipidurae*, n. sp. Female.—32, Idiosoma (ventral); 33, Leg III (ventral); 34, Leg III (dorsal); 35, Idiosoma (dorsal).

shield, which is also preceded and followed by two setae. Five setae arranged 1.1.3 on each side between shield and peritremalia, which latter are as in *P. dicaei*, n. sp., but with poststigmatic shields present. Middorsum with band of ten setae, of which midanterior pair is between posterior of two pairs of shieldlets. Hysterosoma with row of six setae and two discrete, subcircular pygidial shields (each with pore and spinose seta, and flanked posterolaterally by one or two setae). All dorsal setae, except pygidials, minute rods; setae on podosomal shield rather smaller than those on cuticle.

Sternal shield elongate, virtually textureless, but fairly well defined, bearing four pores and flanked by six setae. Genital shield narrow, with muscle insertions amidst longitudinal fluting; operculum weakly rayed; two genital setae and accompanying pores flank shield posterolaterally. Anal shield almost three times as long as wide (128–143 × 50–54 μ), strongly arched anteriorly and slightly concave laterally; lateral margins strongly sclerotized; cribrum present, slightly expanded. Anus set well forward, preceding all three subequal anal setae. Ventral cuticle with six setae arranged 2.4 between genital and anal shields, and posterolaterally with 14 to 16 additional setae. Of setae on ventral cuticle and shields, only genitals are somewhat blunt, while remainder all taper to sharp point.

Leg segments with setation as follows: coxae 2.2.2.1; trochanters 4.4.4.5; femora 9.7.5.5; genua 6.6.6.3; tibiae 7.7.6.6; tarsi -.15.15.15 (excluding two extremely fine terminal setae). Setae on ventral face of segments (except on tarsi) tapering to point, resembling those on coxae; dorsal setae rather weaker. Some distal setae on tarsi II–IV somewhat blunted. Tarsus I with dorso-distal sensory zone. Ambulacra I little modified. Coxa II with process on anterodorsal margin.

Gnathosomal setae twice as strong as posterior, and three times as strong as anterior hypostomals, all rather blunt. Deutosternum with about ten denticles in single file. Chelicerae attenuate in distal half, chelate portion occupying one-twenty-fifth of total length. Palpal setal formula 1.2.4.(7), two dorsodistal tibial rods included. Tarsus with about eight setae; claw not detected. Tritosternum absent.

Discussion.—*P. rhipidurae* immediately calls to mind *P. macclurei* Fain, recorded from *Rhipidura albicollis* in Malaya and *R. leucophrys* in Australia (Fain, 1963a; Domrow, 1964c). The two species may, however, be readily separated by the number of anal setae and the condition of the pygidial shield. Further, in *P. macclurei*, the setae of the idiosomal venter (coxae included) are stronger. (I might add that the merest traces of poststigmatic shields are present in *P. macclurei*, of which I have since taken two further series from *R. leucophrys* at Esk and Brisbane, 8 and 20.ii.1964, respectively.)

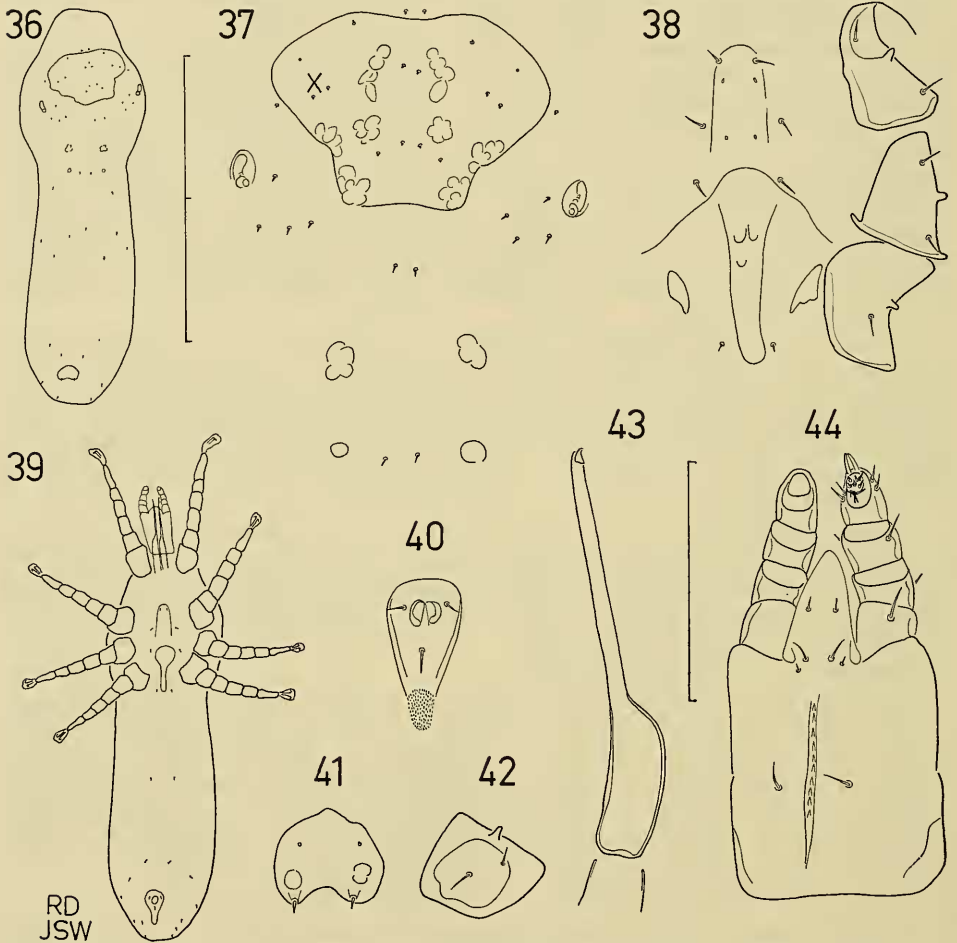
Types.—Four females were collected from the nares of a grey fantail, *Rhipidura fuliginosa* (Sparrman) (Muscicapidae, Passeriformes), Esk, 25.vii.1964, R.G.R. and J.S.W. Holotype NIC; paratypes RD and AF.

PTILONYSSUS DICAELI, n. sp.

(Figs 36–44)

Female.—An elongate mite with idiosoma 960 and 1000 μ long in two mounted, slightly compressed specimens. Podosomal shield one and a half times as wide as long (185 × 138 and 196 × 143 μ); anteromedial margin slightly concave, anterolateral angles strongly convex; posterior quarter of shield much narrower, with outline more irregular and slightly concave posteriorly. Shield with two pores and twelve setae, all paired (one of two setae marked "X" lacking on one side of one specimen); also two setae, both vertically and at anterolateral angles, set just off shield. Two closely-set setae immediately behind, and two groups of four setae between peritremalia and

posterolateral angles of shield. Middorsum with four shieldlets and eight setae arranged 2.6 in addition to two between posterior shieldlets. Pygidial shield convex anteriorly and concave posteriorly, with two pores and two spinose pygidial setae; surrounding cuticle with eight setae arranged 4.4. Setae on podosomal shield weaker than remaining dorsal setae, perhaps slightly more spinose than figured. Both dorsal shields quite well defined, minutely granulate



Figs 36-44. *Ptilonyssus dicaei*, n. sp. Female.—36, Idiosoma (dorsal, freehand); 37, Podosomal shield, peritremalia and mid-dorsal shieldlets; 38, Coxae II-IV, and sternal and genital shields; 39, Whole mite (freehand, ventral); 40, Anal shield; 41, Pygidial shield; 42, Coxa I (ventral); 43, Chelicera (lateral); 44, Gnathosoma (ventral).

and with weak indications of muscle insertions. Each stigma provided with short peritreme, surrounded by very weak shieldlet. Poststigmatic shields absent.

Sternal shield elongate, weakly defined, virtually textureless and bearing SI and four pores; SII and III free in cuticle. Genital shield narrow, not reaching beyond posterior margin of coxae IV; granulate, with weakly rayed operculum and merest traces of muscle insertions; flanked subposteriorly by two genital setae. Anal shield twice as long as wide ($107 \times 54\mu$ in specimen with smaller podosomal shield), with anterior margin weakly defined and fairly straight; lateral margins also straight, but more strongly sclerotized; cribrum

present. Adanal setae near anterior of anus in specimen figured, but nearer posterior in second specimen. Postanal seta slightly stronger than adanals. Ventral cuticle with eight setae arranged 2.6 in front of, and six setae behind anus.

Leg segments with setation as follows: coxae 2.2.2.1; trochanters 4.4.4.3; femora 9.7.4.5; genua 6.6.5.4; tibiae 7.7.6.6; tarsi -15.15.15 (excluding two extremely fine terminal setae closely associated with base of ambulacral stalk). Setae on ventral face of segments tapering, resembling those on coxae (two at apices of tarsi II-IV stronger); those on dorsum blunter and very much weaker. Tarsus I with dorsodistal sensory zone. Ambulacra I more slender than II-IV; claws I slightly weaker than II-IV, little modified in shape. Coxa II without process on anterodorsal margin.

Gnathosomal setae slightly stronger than all three pairs of hypostomal setae, of which inner posteriors are longest and outer posteriors shortest. Deutosternum with about ten denticles in single file. Chelicerae attenuate in distal half, with chelate portion occupying one-thirtieth of total length. Palpal setal formula 1.2.4.8 (including two dorsodistal tibial rods). Tarsus with about eight minute setae; claw seemingly present under oil-immersion, but extremely weak. Tritosternum absent.

Discussion.—The Old World and Australian nectar eaters, “a group of about 400 species entirely confined to the Old World and scarcely entering the north-temperate zone even there” (Darlington, 1957), comprise the four families Dicaeidae (flowerpeckers), Nectariniidae (sunbirds), Meliphagidae (honey-eaters) and Zosteropidae (silveryeyes) (Mayr and Amadon, 1951). All four families are now known to be parasitized by an apparently closely related group of species of *Ptilonyssus* with the genital shield so narrowed that the genital setae, normally set on the shield itself, are left free in the adjacent cuticle.

Mayr and Amadon place the dicaeids next to the nectariniids, noting that their distributions are complementary, the former being Oriental-Australian and the latter African-Oriental, with only one species reaching Australia. One species of *Ptilonyssus*, *P. cinnyris* Zumpt and Till, has been described from African sunbirds, and may easily be separated from *P. dicaei* by having the podosomal shield decidedly longer than wide, with “a pair of conspicuous bristles on its posterior border”, and lacking the pygidial shield (*vide* Zumpt and Till, 1955; Fain, 1957). Dr. Zumpt has since kindly loaned me two paratype females of *P. cinnyris*, and, while they are much overcleared, they show, in addition to the two setae noted above, a pair of strong setae on each side between the podosomal shield and peritremalia. This recalls such species as *P. andropadi* Fain, *P. calamocichlae* Fain, *P. chlorocichlae* Fain, *P. ruandae* Fain, *P. prunellae* Fain and Bafort, *P. pittae* Domrow and *P. psophodae* Domrow (see Fain, 1957, 1963a; Fain and Bafort, 1963b; Domrow, 1964b).

Of the species of *Ptilonyssus* described from meliphagids, an essentially Australian family, *P. lymozemae* Domrow (1965c) shows a setal pattern on the podosomal shield most closely approaching that of *P. dicaei* (allowing for the minor movement of the vertical and extreme anterolateral pairs onto the shield proper). However, *P. lymozemae* shows obsolescent, divided pygidial shields in contradistinction to the fully-formed shield of *P. dicaei*.

P. ruandae Fain (1956a, 1957) is the only species of *Ptilonyssus* recorded from silveryeyes, which are common in all three African, Oriental and Australian regions. This species, recorded both from Africa and Australia, shows a podosomal shield similar to that of *P. dicaei* in shape, with two anterolateral pores and an extremely similar setal pattern, both on and about the shield. Both species further possess entire pygidial shields and are, I believe, closely related. *P. ruandae*, however, has a more starkly cruciform podosomal shield, and exhibits several pairs of very strong dorsal setae quite absent in *P. dicaei*.

Types.—Three females were collected from the nares of a mistletoe-bird, *Dicaeum kirundinaceum* (Shaw) (Dicaeidae, Passeriformes), mist-netted in brushland at Mt. Jukes, near Mackay, N.Q., vi. 1964, R.D. and J.S.W. Holotype NIC; paratype RD. The third specimen, which was not taken into account in the above description, is in the care of Dr. Fain.

PTILONYSSUS THYMANZAE Domrow

(Figs 22–24)

Three ♀♀ and 1 protonymph from two yellow-faced honeyeaters, *Meliphaga chrysops* (Latham), Samford, 18.i. and 8.v.1964, R.D., I.D.F. and J.S.W.; 1♀ from a Lewin honeyeater, *Meliphaga lewini* Swainson, Esk, 27.ii.1965, R.D. and J.S.W.; and 6♀♀ and 1 protonymph from a lesser Lewin honeyeater, *Meliphaga notata* (Gould), Innisfail-Palmerston Highway, 20.i.1965, H.I.McD. and G.J.B. (all Meliphagidae, Passeriformes), comprise new host records. All specimens have podosomal shields resembling that of the male sex figured by Domrow (1964c), while the females, especially of the first two series, are grossly engorged, with lobate body contours as in *P. meliphagae* Domrow, the anal and pygidial shields being just to the fore of the ventrally directed, posterior opisthosomal lobe (Figs 22–23). The midlateral dorsal lobes were seen to be erect and conical in life in the latter series (Fig. 24). The mouthparts of a female from *M. chrysops* are figured in Domrow (1965e). See also the above discussion on *P. microecae*, n. sp.

PTILONYSSUS GLICIPHILAE, n. sp.

(Figs 45–51)

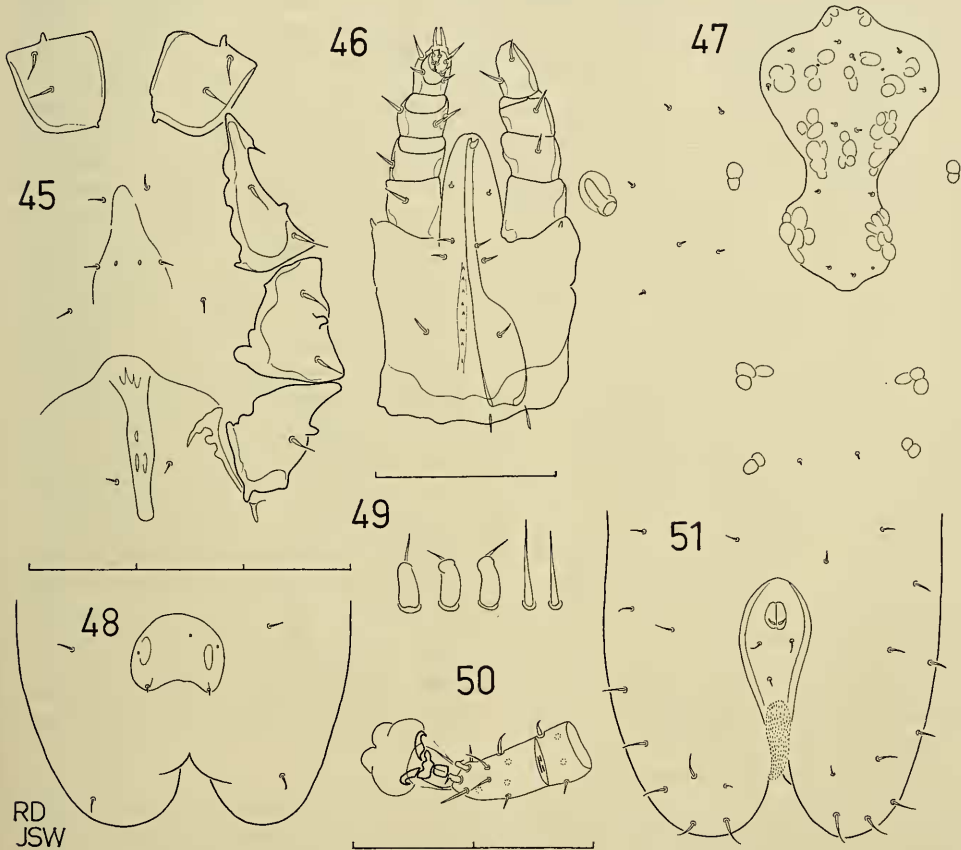
Female.—An elongate mite, but idiosomal length unavailable because of rupture during mounting procedure. Posterior margin of hysterosoma distinctly bilobed in one specimen. Podosomal shield one and a half times as long as wide ($258 \times 165\mu$); anteromedial margin "M"-shaped, anterolateral angles strongly convex; lateral margins concave, but shield expanding towards convex posterior margin. Shield with four pores and twelve setae, all paired (one posterior pore lacking on one side of one specimen); flanked midlaterally by two shieldlets. About six pairs of setae between shield and peritremalia, which latter are as in *P. dicaei*, n. sp. Middorsum with four shieldlets and 10 setae arranged 4.6 (not figured) in addition to two between posterior shieldlets. Pygidial shield much as in *P. dicaei*, both flanked and followed by one pair of setae. Both dorsal shields well defined, shagreened and marked by muscle insertions.

Sternal shield elongate, weakly defined, virtually textureless, and bearing SII and two pores; SI and III free in cuticle. Genital shield narrow, not reaching beyond posterior margins of coxae IV; with longitudinally arranged granulations, weakly rayed operculum and muscle insertions; flanked sub-posteriorly by two genital setae. Anal shield three times as long as wide ($190 \times 58\mu$), with anterior margin very strongly, and lateral margins only slightly convex; disc weakly granulate, but cuticle shagreened laterally; elongate cribrum present. Anal setae weak, particularly postanal; all behind anus. Two setae (not figured) on ventral cuticle between genital and anal shields, and latter shield surrounded by setae arranged 11.11 and 12.13, one of subposterior pairs being quite weak, cf. *P. myzanthae* Domrow, 1964b, also a parasite of meliphagids.

Leg segments with setation as follows: coxae 2.2.2.1; trochanters 4.4.4.5; femora 9.8.5.5; genua 6.7.7.5 (4 on one side of one specimen); tibiae 7.7.7.7; tarsi -.15.15.15 (excluding two extremely fine terminal setae closely associated with base of ambulacral stalk). Setae on ventral face of segments rather similar to those on coxae (two at apices of tarsi II–IV somewhat hypertrophied basally, with dorsally directed, filamentous apical portion at right angles to

shaft proper); those on dorsum considerably weaker, especially on legs I and II. Tarsus I with dorsodistal sensory zone. Ambulacra and claws much as in *P. dicaei*. Coxa II with strong process on anterodorsal margin.

Gnathosomal setae slightly stronger than subequal posterior hypostomals; anterior hypostomals extremely weak. Deutosternum with about eight minute denticles in single file. Chelicerae attenuate in distal half, with chelate portion occupying one-thirtieth of total length. Palpal setal formula 1.2.4.8 (including two dorsodistal tibial rods). Tarsus with about seven minute setae; claw not detected, even under oil-immersion. Tritosternum absent.



Figs 45-51. *Ptilonyssus gliciphilae*, n. sp. Female.—45, Coxae, sternal and genital shields; 46, Gnathosoma (ventral, with right palp dorsal); 47, Podosomal shield, peritremalia and mid-dorsal shieldlets; 48, Pygidium (dorsal); 49, Setae from tarsus IV (freehand); 50, Tarsus IV (ventral); 51, Pygidium (ventral).

Discussion.—Two other species of *Ptilonyssus* with accessory shieldlets flanking the podosomal shield are known from Australian meliphagids, *P. thymanzae* Domrow and *P. meliphagae* Domrow (1964c), but these have the podosomal shield, both in its shape and setation, quite different from that of *P. gliciphilae*. *P. gliciphilae* further differs (i) from *P. thymanzae* by the position of the adanal setae; and (ii) from *P. meliphagae* by the contours of the hysterosoma.

Types.—Two females were collected from the nares of brown honeyeaters, *Gliciphila indistincta* (Vigors and Horsfield) (Meliphagidae, Passeriformes), one

mist-netted in mangroves at Chelona, near Sarina, vi.1964; and one shot in flowering red bottle-brush (*Callistemon viminalis*), Esk, 15.x.1964, both R.D. and J.S.W. Holotype (the Chelona specimen) NIC; paratype RD.

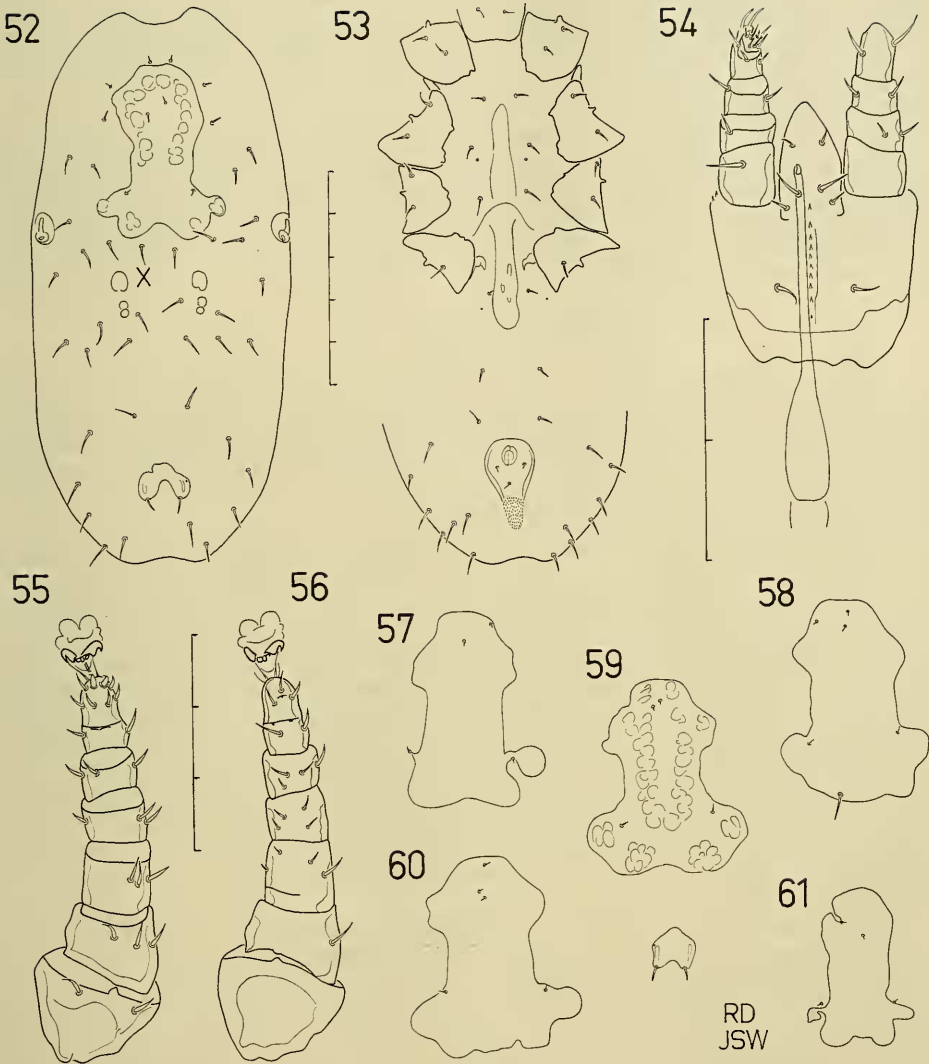
PTILONYSSUS STOMIOPERAE, n. sp.

(Figs 52-61)

Female.—An elongate mite with idiosoma 1,045-1,287 μ long in four unengorged, relatively slightly compressed specimens (three from *Meliphaga*, one from *Stomiopera*), 1,386 and 1,529 μ in two replete specimens from *Stomiopera*. Specimens from *Stomiopera* show a larger podosomal shield with antero- and posterolateral lobes well developed as in Figure 59. Three specimens show this format, the shield measuring 446-459 \times 366-379 μ . Two show the following aberrancies: one vertical seta on shield (Fig. 60) and one vertical and one body seta "X" on shield (Fig. 58). In both these specimens, the podosomal shield is longer (464 μ), but wider (402 μ) in the former and narrower (348 μ) in the latter. A third aberrancy (Fig. 57) involves the loss of one posterolateral lobe, narrowing the shield to 459 \times 324 μ (measurements overall, as throughout this paper). Specimens from *Meliphaga* show the antero- and posterolateral lobes reduced, resulting in a smaller shield, typically 379-402 \times 276-299 μ in three specimens (Fig. 52). The fourth specimen is aberrant, with the shield even smaller (370 \times 264 μ), showing an increased insularity of the posterolateral lobes, leaving one shield seta marginal and the other free in the cuticle (Fig. 61). Shield well defined, distinctly shagreened and with muscle insertions particularly strongly marked in specimens from *Stomiopera*; bearing two usually closely-set setae anteriorly and two submarginal setae posterolaterally. Shield preceded by two vertical setae, flanked laterally by three pairs of setae and followed by two setae. Five additional setae arranged 1.1.3 present on each side between posterolateral lobes and peritremelia, which latter are contained in weakly sclerotized shieldlets. Middorsum with band of ten setae, of which midanterior pair is set between posterior of two pairs of shieldlets. Hysterosoma with about twelve setae surrounding pygidial shield, which is convex anteriorly and concave posteriorly, with muscle insertions and at least one pore laterally, and two pygidial setae posteriorly. In specimens from *Meliphaga* (Fig. 52), the shield is wider and somewhat irregular in outline; in specimens from *Stomiopera* (Fig. 59), it is narrower and more compact. All dorsal setae, including pygidials, particularly strong, except for verticals, those on, and one or two pairs flanking podosomal shield anterolaterally.

Sternal shield elongate, with extremely weak granulations and ill-defined margins; flanked by two pores and six setae. Genital shield narrow, distinctly granulate, with muscle insertions and rayed operculum; flanked subposteriorly by two setae and attendant pores. Anal shield slightly more than one and a half times as long as broad (219-233 \times 120-125 μ in three specimens from *Meliphaga* and two from *Stomiopera*; three other specimens from *Stomiopera* are 240-250 \times 129-147 μ); margins evenly rounded anterolaterally and fairly straight posterolaterally; cribrum present. Anus well forward, set in front of all three anal setae. Ventral cuticle with eight setae arranged 2.6 between genital and anal shields, which latter is flanked posterolaterally by an additional ten setae. Ventral setae also strong with exception of genitals and anals.

Leg segments with setation as follows: coxae 2.2.2.1; trochanters 4.4.4.5; genua 7.6.7.5; tibiae 7.7.7.7; tarsi -15.15.15 (excluding two extremely fine terminal setae). Femora variable, 9.8.7 (6 on one side of one specimen) .6 in series from *Meliphaga*, and 9.8.8.6 (7 on one side of two specimens) in series from *Stomiopera*. Setae on ventral face of segments similar to those on coxae, but dorsal setae generally weaker. Two ventral setae at apices of tarsi II-IV with tips suddenly constricted and angulate, cf. *P. gliciphilae*, n. sp. Tarsus



Figs 52-61. *Ptilonyssus stomioperae*, n. sp. Female.—52, Idiosoma (dorsal); 53, Idiosoma (ventral); 54, Gnathosoma (ventral, with right palp dorsal); 55, Leg III (ventral); 56, Leg III (dorsal); 57-61, Podosomal shield (variants, 59 with inset of pygidial shield). (Figs 57-60 *Stomiopera*, remainder *Meliphaga*.)

I with dorsodistal sensory zone. Ambulacra I more slender than II-IV. Coxae II with process on anterodorsal margin.

Gnathosomal setae slightly smaller than inner posterior hypostomals; outer posterior and anterior hypostomals smaller still. Deutosternum with about ten denticles in single file. Chelicerae attenuate in distal two-thirds, chelate portion occupying one-thirty-fifth of total length. Palpal setal formula typically 1.3.4.8 (including two dorsodistal tibial rods), but may be one fewer setae on femur and/or genu. Tarsus with about six minute setae and weakly bifid claw. Tritosternum absent.

Discussion.—In showing the chelicerae suddenly attenuate distally and the pygidial shield entire and well developed, *P. stomioperae* is closest to *P. thymanzae* Domrow (1964c) among the species of *Ptilonyssus* parasitizing meli-

phagids, an essentially Australian group of passeriform birds. The former species, however, has the podosomal shield wider posteriorly, bearing only two pairs of setae, while this shield in the latter is wider anteriorly, and bears four to five pairs of setae. Further, the dorsal setation of *P. stomioperae* is decidedly heavier than that of *P. thymanzae*.

Types.—Ten females were collected from the nares of honeyeaters as follows: holotype and five paratypes from two white-gaped honeyeaters, *Stomiopera unicolor* (Gould), and four paratypes from a yellow honeyeater, *Meliphaga flava* (Gould), all mist-netted amidst flowering *Callistemon* in the bed of Magnificent Creek, Mitchell River, xi.1964, R.D. Holotype NIC; paratypes RD, AF and RWS.

HATTENA PANOPLA, n. sp.

(Figs 62–64)

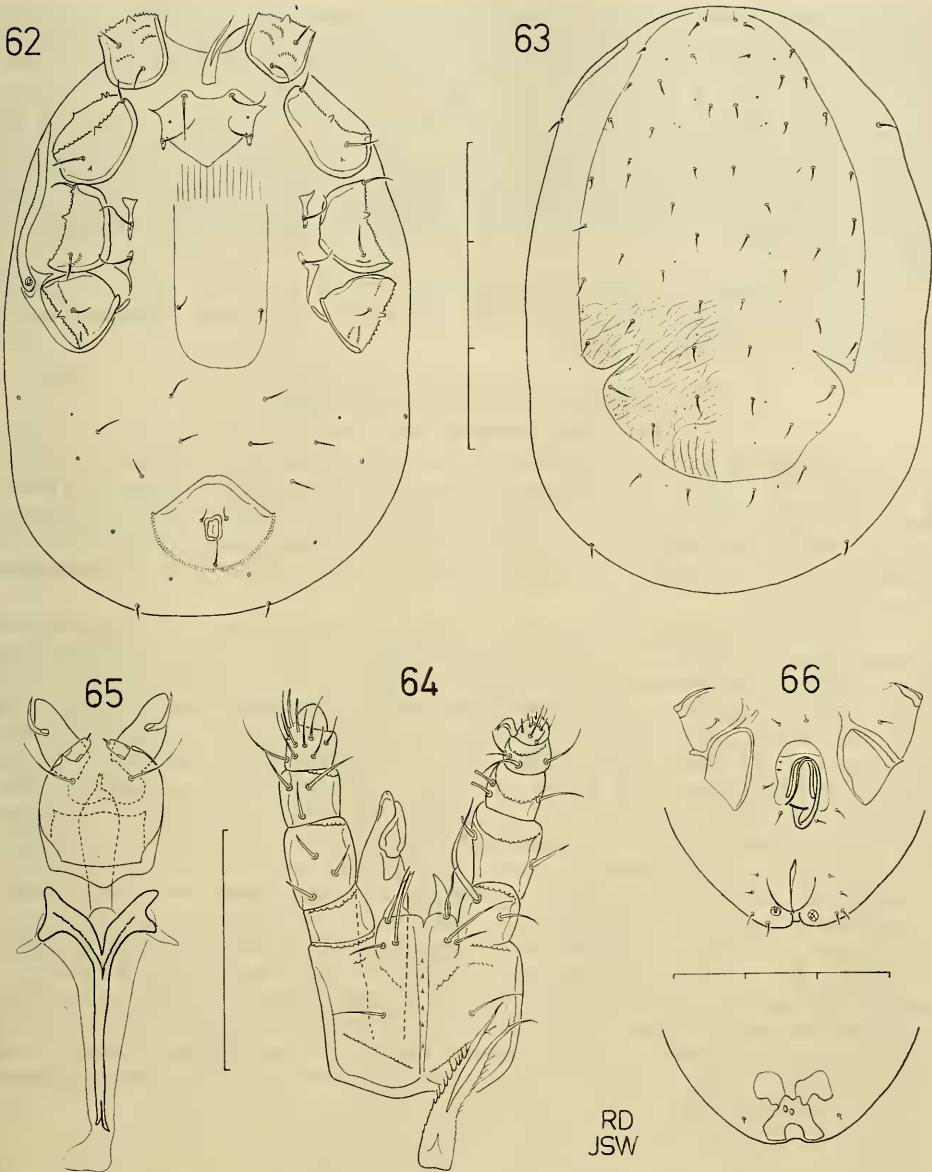
Female.—Idiosoma 547 μ long in slightly compressed specimen. Dorsal shield reduced, marked by irregular, reticulate striae and lightly punctate. System of paired pores present on shield, together with 25 pairs of setae, of which four pairs are behind posterolateral incisions. Broad band of marginal cuticle with two setae humerally, two posteriorly and four in line closely following that of posterior margin of shield.

Sternal shield concave between SI, reduced and palely triangular behind SII, textureless. SI and accompanying pores on shield proper; SII and pores borne on minute posterolateral promontories. SIII and pores on shieldlets; metasternal setae on shieldlets. Genital shield unexpanded, barely reaching beyond posterior margins of coxae IV; bearing two setae and rayed operculum. Anal shield with anterior margin angularly convex and slightly denser than remainder of shield, whose surface is slightly reticulate. Posterior margin roundly convex, entirely occupied by narrow cribrum. Anus centrally placed, with adanal setae near its anterior margin, and weaker than postanal seta. Ventral cuticle with four pairs of setae preceding, and one pair following anal shield. Also with five pairs of distinct pores borne on small plaques. Peritremes extending forward to near level of posterior margin of coxae I, minutely crenulate at edges. Peritremal shields extended posteriorly to fuse with exopodal plates IV.

Coxae, some trochanters and gnathobase with rows of spinulose denticulations. Distal margins of leg and palpal segments similarly armed. All leg setae slenderly tapering, formulation as follows: coxae 2.2.2.1; trochanters 6.5.5.5; femora 12.10.7/6.6; genua 12.11.9.10; tibiae 12.10.8.10; tarsi -.16.16.16 (excluding two terminal filaments). This compares well with Till's (1963) formulae for *Androlaelaps* Berlese *s.l.* (including *Haemolaelaps* Berlese), except that one seta less is present on femora I and II and genu and tibia I. (The same formula occurs in *H. erosa* Domrow, where femur III is regularly 7.) Ambulacra all well developed, but claws obsolescent.

Gnathosomal and hypostomal setae subequal except for smaller outer posterior hypostomals. Deutosternum with six small denticles. Tritosternum small, but with two ciliated laciniae. Labial cornicles also small, sharply pointed. Palpal setal formula (trochanter to tibia) 2.5.6.14 (including two dorsodistal tibial rods), agreeing with that given by Till for *Androlaelaps*. Inner seta on palpal trochanter filamentous, and two on inner face of genu clavate. Tarsal claw two-tined. Chelicerae stout, with two strongly sclerotized digits, whose armature is not clear; corona absent.

Discussion.—As Baker and Yunker (1964) have recently reported blattisociine mites both in flowers and the nares of hummingbirds in America, it is of interest to note similar records from Australia. Members of this subfamily have been seen on the pollen-strewn beaks and bare facial skin of several noisy friar-birds, *Philemon corniculatus* (Latham) (Meliphagidae, Passeriformes), feeding in



Figs 62-64. *Hattena panopla*, n. sp. Female.—62, Idiosoma (ventral); 63, Idiosoma (dorsal); 64, Gnathosoma (ventral, with left palp dorsal).

Figs 65-66. *Passerrhinoptes pomatosomi*, n. sp. Male.—65, Gnathosoma and coxal apodemes I (ventral); 66, Hysterosoma (ventral above, dorsal below).

flowering *Eucalyptus* at Logan Village, S.E.Q., but these specimens are not now available for closer study. The opportunity has been taken, however, to describe a specimen from the nares of another honeyeater.

Using Evans' key (1957) (see also Chant, 1963), it is a little difficult to decide if this specimen is a blattisociine or a platyseine, as the inner palpal trochanteral seta is filamentous, while the anterior hypostomals are not, etc. The former choice has been made, as, while the specimen little resembles the platyseine genera figured by Evans and Hyatt (1960), it also shows the dorsal

shield laterally incised as in some blattisociine genera (Evans, 1958). However, in Evans' latter key, the new species will not run to either of the relevant genera, *Leioseius* Berlese or *Arctoseius* Sig Thor. Nor does it appear to belong to Baker and Yunker's two genera, *Rhinosieus* and *Tropicoseius*.

In some respects, particularly the erosion of the sternal shield and the shape of the anal shield, the new species appears congeneric with *Hattena erosa* Domrow (1963), described from an unidentified bird from Sabah (British North Borneo). In *H. erosa*, the dorsal shield (unincised) bears 21 pairs of setae and the sternal shield one pair; in *H. panopla*, the corresponding figures are 25 and two.

Types.—Holotype female from the nares of a brown honeyeater, *Gliciphila indistincta* (Vigors and Horsfield) (Meliphagidae, Passeriformes), Chelona, Sarina, vii.1964, G.B. Holotype NIC.

Family SPELEOGNATHIDAE
SPELEOGNATHOPSIS BENOITI Fain

The following records (all adult specimens) are the first of this species from Australia: one from a black-fronted dotterel, *Charadrius melanops* Vieillot, Esk, 29.viii.1964, R.D. and J.S.W.; one from a red-kneed dotterel, *Erythrogonys cinctus* Gould, Mitchell River, xi.1964, R.D.; and ten from a masked plover, *Lobibyx miles* (Boddaert), Mitchell River, xi.1964, R.D. (all Charadriidae, Charadriiformes).

All three series show the seta on coxa II obsolescent (+), their coxal formulæ being, in turn, 2.+1.1, 2.+1.1 and 2.+1.0. The first specimen agrees with the description of *S. charadricola* Fain (1964), except for the presence of (i) seta on coxa IV; and (ii) four setae (4B) rather than three (3B) on femur IV. The second specimen recalls *S. benoiti* Fain (1955, 1956b, 1963b), possessing five setae in the first postsensillary row and genital setae arranged 5.4, but differs from that species in having (i) only six setae (5B.1N) on femur I rather than 6B.1N; and (ii) three setae on femur IV rather than four. The third series agrees entirely with *S. charadricola*, but normally has four setae on femur IV rather than three (however, two show 4.3 and one even 3.3). Granting a considerable range of individual variation in this widespread and weakly sclerotized group of internal parasites, only one species need be involved, and I therefore consider *S. charadricola* a synonym of *S. benoiti*. This is further confirmed by a study of individual variation in the dorsal setal pattern of a series of 19 adults (one damaged specimen omitted) since collected in the nares of a single black-fronted dotterel (Mitchell River, 17.iv.1965, R.D.). The number of setae in the first postsensillary row was 4 three times, 5 seven times, 6 eight times and 7 once, the full formula for the lattermost specimen (2.7.4.3.2.5.2) showing three rows uneven.

NEOBOYDAIA MEROPS (Fain)

Four adults collected as follows are the first records of this species in Australia: rainbow-bird, *Merops ornatus* Latham (Meropidae, Coraciiformes), Esk, 29.viii.1964 and 27.ii.1965, R.D. and J.S.W.; and Innisfail-Palmerston Highway, i.1965, H.I.McD. and G.J.B. See Fain (1955, 1956c).

Family CHEYLETIDAE
NEOCHEYLETIELLA ARTAMI, n. sp.
(Figs 67, 69)

Female.—An oval-bodied mite with idiosoma 366 and 410 μ long in slightly compressed specimens. Dorsal shield evenly rounded, but very weakly defined anteriorly; narrower and irregular, but clearly demarcated posteriorly; virtually textureless and bearing two fine setae on extreme anterolateral margins. Dorsal

body cuticle with additional ten pairs of softly filamentous setae, all of which are minutely bipectinate, and two pairs of smooth adanal setae.

Ventral body cuticle with four sternal, two preanal and four adanal setae, all smooth. Valves of terminal genitoanal aperture each with four smooth setae.

Legs. Coxal apodemes I and II elongate, all discrete posteriorly; apodemes III and IV also discrete, but smaller. Coxal setal formula 2.1.1.1, all smooth. Remaining leg setation generally bipectinate (some pretarsals especially so), though shorter setae tend to be smooth, particularly ventrodistally. Trochanters 1.1.1.1, all ventral. All femora with one seta dorsally;

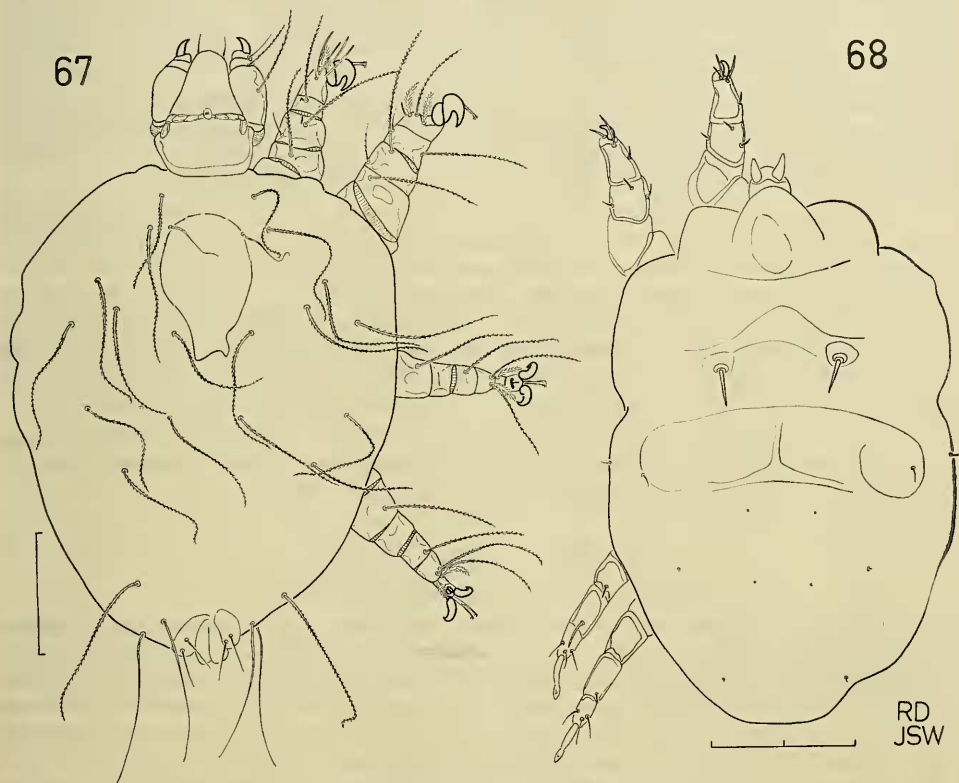


Fig. 67. *Neocheyletiella artami*, n. sp. Female.—Dorsum.

Fig. 68. *Passerrhinopies pomatostomi*, n. sp. Female.—Dorsum.

I and II also with ventral seta. Genua I and II each with two setae dorsally; former also with dorsal rod; genu III with seta ventrally; genu IV asetose. Tibia I with one dorsal and three ventral setae; also with minute rod; tibia II with two setae both dorsally and ventrally; tibiae III and IV each with one seta dorsally and two ventrally. Tarsus I with five setae and five rods, four of latter borne on distinct dorsodistal saliency; tarsus II with seven setae and rod; tarsi III and IV with seven and six setae respectively, arranged as figured. Claws paired, strongly curved and somewhat swollen basally; attached to sclerotized basal apodemes. Pulvilli divided, with tips abruptly bent and minutely bifid.

Gnathosoma stout, with two setae ventrally on gnathobase and four on rostrum. Palpal trochanter obsolescent. Femur with one seta dorsally and two ventrally. Genu and tibia with seta both dorsally and ventrally. Tarsus

ill-defined, with about two setae and rod. All gnathosomal setae smooth except dorsal setae on palpal femur and genu. Chelicerae styliform, forming J with articular sclerites. Each arm of peritreme with five segments, sigmoid.

Discussion.—Of the species of *Neocheyletia* Baker (1949) (less those forms with two dorsal shields removed in 1964 by Volgin to *Ornithocheyletia*), *N. artami* recalls *N. smallwoodae* Baker, but differs (as does *Ornithocheyletia megaphallos*, v. *infra*), in having an additional pair of setae immediately behind the dorsal shield. Dr. R. L. Smiley, U.S. Department of Agriculture, Washington, has kindly compared my specimens with Dr. Baker's, and confirmed this difference.

Of the 19th century species listed by Baker (1949), only *Cheyletus macronycus* Mégnin (1878) seems near to *N. artami*. I am grateful to Dr. M. André, Paris, for the following information: "*Mégnin était Professeur à l'École Vétérinaire d'Alfort, près Paris. Sa collection est très probablement restée dans cette Institution mais, jusqu'ici, il n'a pas été possible de la retrouver. J'ignore si les échantillons sont provisoirement égarés ou bien s'ils ont disparu définitivement. En tout cas les exemplaires dont vous venez de me faire parvenir les illustrations sont certainement très voisins de macronychus et peut être appartiennent-ils à cette même espèce.*" Subsequent enquiries to Alfort have gone unanswered.

The genus *Ornithocheyletia* was erected by Lawrence (1959), primarily on the male intromittent organ, for *O. megaphallos*, a parasite of a waxbill (Ploceidae, Passeriformes), for the loan of specimens of which I am most grateful to Dr. R. F. Lawrence, Natal Museum, Pietermaritzburg. *N. artami* is readily separated by its unisetose trochanter III, and the presence of a seta dorsally on tibia III and an additional seta on the ventral face of tarsus III. In addition, coxal apodemes I and II are free distally, the dorsal setae on femur and genu I are longer, and genua I is internal to the adjacent seta.

Types.—Holotype female and paratype female from the dusky woodswallow, *Artamus cyanopterus* (Latham) (Artamidae, Passeriformes), Exeter, Tas., 9.iv.1964, R.H.G. Holotype NIC; paratype RD.

Family TROMBICULIDAE

ODONTACARUS AUSTRALIENSIS (Hirst)

New host records for larvae of this species are: five from eyelids of one, and two from another Australian black-shouldered kite, *Elanus notatus* Gould (Accipitridae, Falconiformes), Dalby, 14.vi.1963, I.D.F. and R.G.R.; five from a nankeen kestrel, *Falco cenchroides* Vigors and Horsfield (Falconidae, Falconiformes), same data; nine from a grey-crowned babbler, *Pomatostomus temporalis* (Vigors and Horsfield) (Timaliidae, Passeriformes), Condamine, same data; three from a black-faced cuckoo-shrike, *Coracina novaehollandiae* (Gmelin) (Campephagidae, Passeriformes), Condamine, 6.vii.1963; 27 from a rufous whistler, *Pachycephala rufiventris* (Latham) (Pachycephalidae, Passeriformes), same data; and three from a noisy friar-bird, *Philemon corniculatus* (Latham) (Meliphagidae, Passeriformes), Logan Village, 16.vii.1963, R.D., I.D.F. and R.G.R. See Hirst (1925), Domrow (1956) and Brennan (1959). Also 1 larva from a Lewin honeyeater, *Meliphaga lewini* Swainson (Meliphagidae, Passeriformes), Innisfail, 2.viii.1965, R.D. and J.S.W.

TROMBICULA SHIRAHII Sasa, Kano and Ogata

This species, previously known only from two larvae from the eastern golden plover, *Pluvialis dominica* (Müller) (Charadriidae, Charadriiformes) in Japan, may now be recorded from Australia as follows: 15 larvae from the bar-tailed godwit, *Limosa lapponica* (Linnaeus) (Scolopacidae, Charadriiformes), Heron Is., Great Barrier Reef, 8.i.1964, J.B. Japan and Australia are included in the range of both hosts. See Sasa *et al.* (1952) and Sasa and Jameson (1954).

LEPTOTROMBIDIUM MYZANTHA (Womersley)

Eleven larvae from a green-winged pigeon, *Chalcophaps chrysochlora* (Wagler) (Columbidae, Columbiformes), mist-netted at Mt. Jukes, Mackay, vi.1964, R.D. and J.S.W.; and five larvae from a pale-yellow robin, *Eopsaltria capito* Gould (Muscicapidae, Passeriformes), Innisfail-Palmerston Highway, 11.ix.1964, H.I.McD., have been examined. See Gill *et al.* (1945), Womersley (1952), and Womersley and Audy (1957). The last authors say "the subgenus is not indicated in the original description of the larva on p. 71", but this is not true of either copy in this Institute. They further wonder if the "lousy jack" is the grey butcher-bird (*Cracticus torquatus*), but, in my experience, it is *Struthidea cinerea*, the apostle-bird (i.e. the first of the birds listed by Gill *et al.*), that goes commonly under this name in Queensland. The name stems from their frequent infestation with mites (presumably tropical fowl mites, which are popularly called "sparrow lice"), and has since been reported to me to be in use for two other Queensland birds, the grey-crowned babbler (*Pomatostomus temporalis*) and the introduced Indian myna (*Acridotheres tristis*). Of the several common names for *Struthidea* and *Pomatostomus*, "apostle-bird" and "happy family" are used interchangeably, while the former is also applied to the white-winged chough (*Corcorax melanorhamphus*). All three are gregarious (Cayley, 1963).

NEOSCHOENGASTIA POSEKANYI Wharton and Hardcastle

This widespread member of a bird-parasitic genus (Wharton and Hardcastle, 1946; Sasa and Jameson, 1954) has been once recorded from Australia (Derrick and Womersley, 1954), and the following material has since been noted: one larva (ACB635, formerly ACA1334), Wondecla, N.Q., 7.x.1943, R.V.S.; and a very active colony of 12-15 reddish, newly-hatched larvae on top of burnt tree-stump, about 2'6" from ground, Samford, 14.xi.1963, R.D. and I.D.F.

Dr. R. V. Southcott, Adelaide, has kindly made available his field notes on the first specimen. It was taken running over a book on an army field exercise in rainforest, and was recognized, at $\times 28$, as a trombidiform larva. It was red in colour and reminded one of *Microsmaris* Hirst (Erythraeidae, see Southcott, 1961). Its eyes appeared 1 + 1 and between them were seen two dots. These dots were undoubtedly the expanded sensillae, which also appear quite dark in the Samford series, which was mounted directly from spirit into Hoyer's medium on the morning of capture. The eyes are rather 2 + 2, but they are borne on each side on a distinct ocular plate, and the posterior two are quite dwarfed by the convex corneae of the anterior pair.

Family TURBINOPTIDAE

PASSERRHINOPTES POMATOSTOMI, n. sp.

(Figs 65-66, 68, 70)

Female.—Idiosoma 750-770 μ long in three mounted (but only slightly compressed) specimens, 836 μ in fourth flattened specimen. Ovate, with five blunt extensions anterolaterally above gnathosoma and trochanters I and II (formermost bearing merest suggestion of dorsal shield); slightly constricted just in front of coxae III; cuticle largely textureless, except for striations outlining evenly-arranged lobules middorsally, two of which each bear heavy seta with sclerotized insertion. Posterolateral margins with three pairs of setae (anterior pair much more evident than remainder) surrounding four pores. Pair of supracoxal III setae present.

Vulva transverse, flanked by six setae (anterior pair issuing from contiguous bases in one specimen); endogynium absent. Anus longitudinal; adanal setae in four pairs. Details of unpaired internal duct near anus not clear.

Legs with five free segments, coxae incorporated into body wall. Apodemes I fused to form Y, with posterior arm twice as long as anterior; II sigmoid;

III and IV contiguous and virtually complete. Coxal, trochanteral and femoral setal formulae 1.0.1.0, 1.1.1.0 and 1.1.0.0, respectively. Genua I and II with two basal setae and distal solenidion; genu III with solenidion; genu IV unarmed. All tibiae with seta (point of insertion variable) and dorsodistal solenidion (solenidia I–III three times as long as IV). Tarsi I and II much compacted, heavily sclerotized; with dark, curved claw issuing dorsally, together with two and one solenidia, respectively; each with about six minute setae ventrally. Tarsi III and IV normally formed, fully half as strong as corresponding tibiae, each with four slender setae (three dorsal and one ventral). It seems likely that the thickened (but pale and straight) structures set

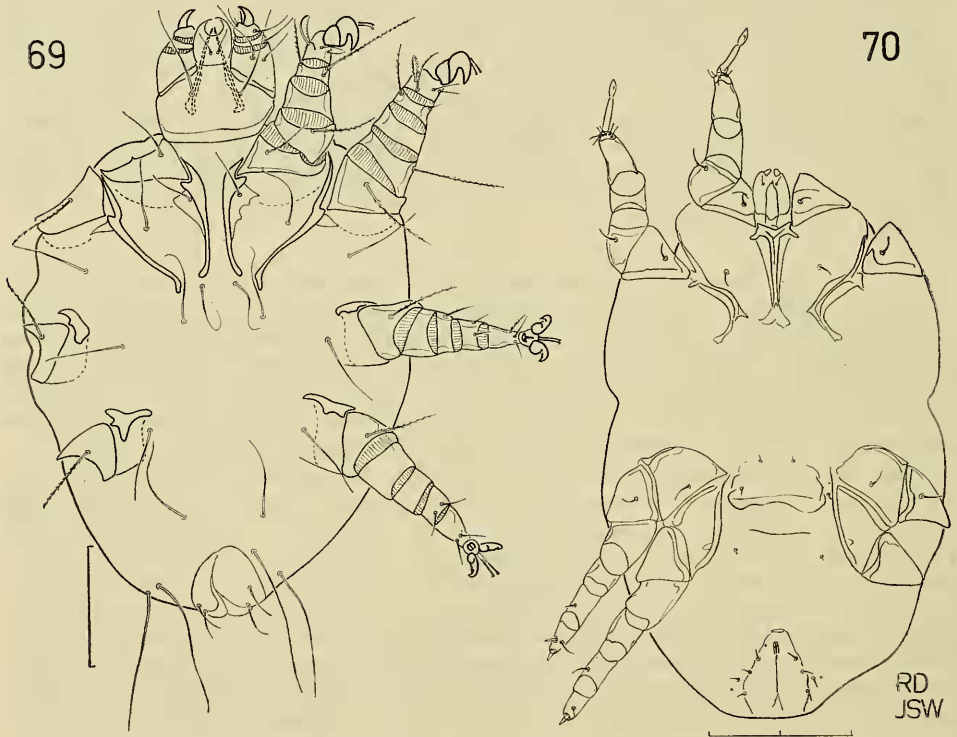


Fig. 69. *Neochelyletia artami*, n. sp. Female.—Venter.
Fig. 70. *Passerrhinoptes pomatostomi*, n. sp. Female.—Venter.

terminally on the ventral aspect of tarsi III and IV are setae rather than claws. They are quite unlike claws I and II, and much resemble the thickened ventral seta on tarsus III. All ambulacra stalked and slightly expanded distally; I and II issue beneath claw, III and IV above terminal "spine".

Gnathosoma as in male.

Male.—As in female unless otherwise stated. Idiosoma 660μ long. Hysterosoma with irregular X-shaped shield, whose posterior arms are the more heavily sclerotized; notched midposteriorly. Remnants of genital discs present. Penis support in reversed U; penis elongate, slenderly tapering throughout its single coil. Anal discs small, diameter 13μ . Gnathosoma minute, with two ventral setae. Palpi displaced ventrally, very weak, apparently with only one segment and at least one seta. Chelicerae set into biconcave dorsal emargination; shaft and fixed digit stout, movable finger very weak and slender.

Nymphs.—At least two free nymphal stages occur. One (apparently subadult) has idiosoma 750–760 μ long, and is similar to female except for lack of vulva, ambulacra on all tarsi and fully-formed coxal apodemes III and IV. An earlier stage (640 μ) is similar to subadult, but lacks all trochanteral, tibial IV and all but two genital setae.

Discussion.—Only one other species of *Passerrhinoptes* is known, *P. andropadi* Fain, which has been recorded from bulbuls (Pycnonotidae) in Africa and babblers (Timaliidae) in the Orient (see Fain, 1956*d*, 1960; Fain and Bafort, 1963*a*; Fain and Nadchatram, 1962). Dr. Fain has kindly lent me paratypes of his species, as well as his Malayan specimen, and *P. pomatostomi*, while also a parasite of a babbler, is clearly separable in both sexes by (i) its two heavy dorsal setae; and (ii) the proportions of the arms of the fused coxal apodemes I. Further, in the male, the adanal discs are decidedly larger, and the details of the opisthosomal shield differ.

Types.—Holotype female, allotype male, three paratype females and four morphotype nymphs from the nares of a grey-crowned babbler, *Pomatostomus temporalis* (Vigors and Horsfield) (Timaliidae, Passeriformes), Esk, 29.viii.1964, R.D. and J.S.W. Holotype and allotype NIC; paratypes RD and AF.

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